

Transforming electrical energy investigation

Teachers Notes - Lesson 4 - Slide 7

Task: Constructing circuits to observe the transformation of energy

A lesson to explain the transformation of electrical energy by developing scientific explanations for observations.

Teacher Background

Energy cannot be destroyed, but rather transformed, e.g. the sun's energy is used by plants to grow and produce fruit, humans then consume the fruit which can be used to maintain our body temperature and allows us to move, walk or run.

Assessment

Formative assessment – monitoring students' learning and developing understanding via observation and providing feedback to extend learning

Equipment

- Role badges from Lesson 4
- Each team member's SciTech journal
- 1.5 volt batteries
- Light bulb
- 2 Connecting wires
- Electric motor
- Buzzer

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Activity steps

- Review previous sessions on circuits
- Discuss with students the concept that energy cannot be destroyed
- Ask students if they are aware of any other transformations of energy.
- Students discuss and share what they would like to find out about the transformation of energy and add to KWL chart
- Divide the class into groups, assign roles (Chief Scientist, Safety Officer, Lab Technician, Science Journalist and Science Communicator) and hand out the role badges
- Ask Lab Technicians to collect equipment
- Students construct a closed circuit that includes 1 battery, 2 wires and a light bulb.
- Ask students how they think electrical energy transformed in the light bulb?
- (Electrical energy is transformed to light making the light bulb glow and heat.)
- Ask students to lightly touch the light bulb.
- What can they feel? – Heat.
- Students draw and label a diagram of their circuit indicating the transformation of electrical energy
- Students replace the light bulb in their circuit with a buzzer.
- How is the electrical energy transformed? (Electrical energy is transformed to sound and heat.)
- Students draw and label a diagram of their circuit indicating the transformation of electrical energy.
- Students replace the buzzer in their circuit with an electric motor.
- Ask how the electrical energy transformed.
- (Electrical energy is transformed to movement, sound and heat).
- Students draw and label a diagram of their circuit indicating the transformation of electrical energy.